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Oct 1970

SCHOTT OPTICAL COLOR FILTER GLASS

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SCHOTT

SCHOTT OPTICAL GLASS INC.

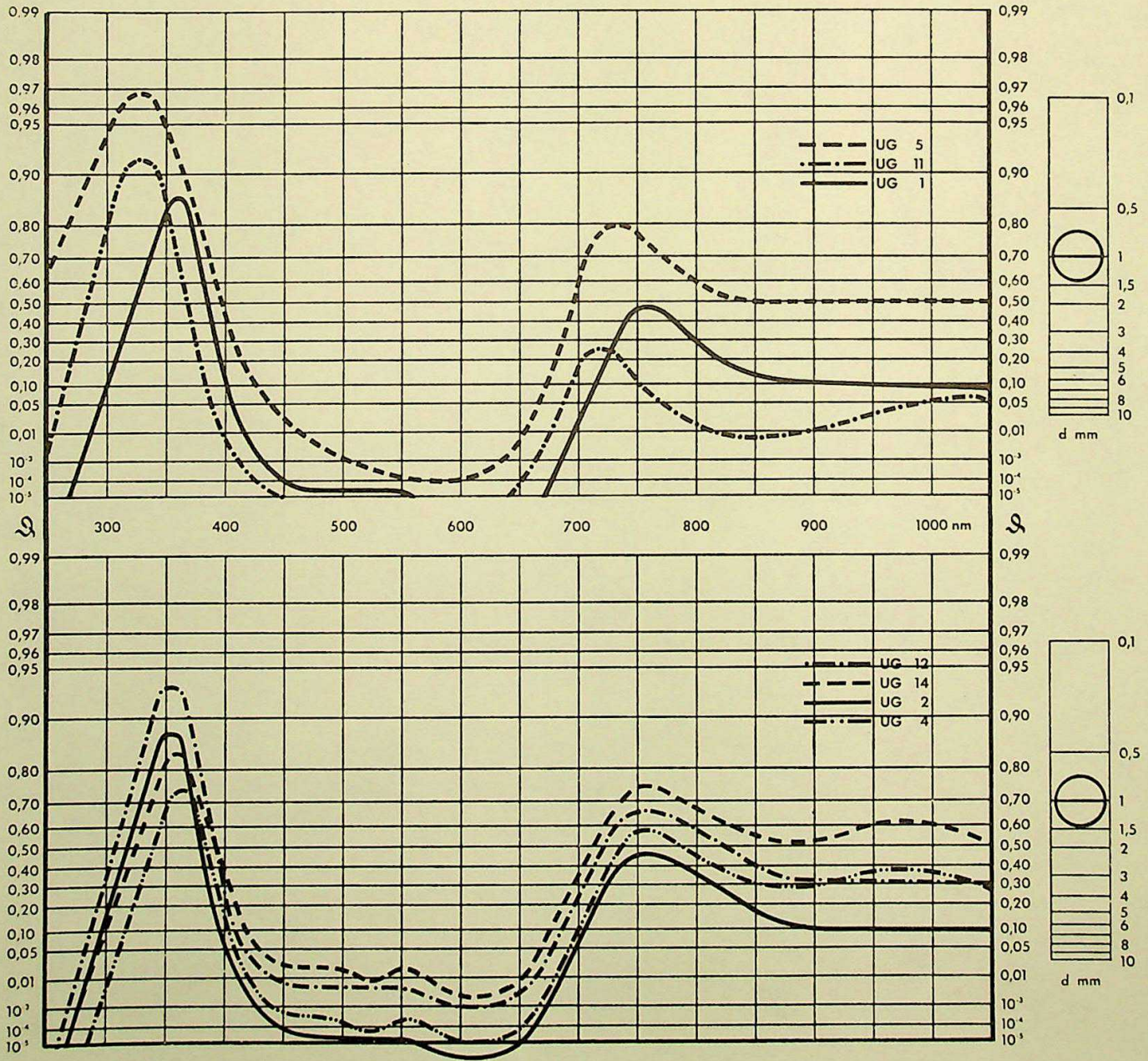
YORK AVENUE, DURYEA, PENNSYLVANIA 18642

Telephone 717 - 457-7485 TWX Schott 837 423

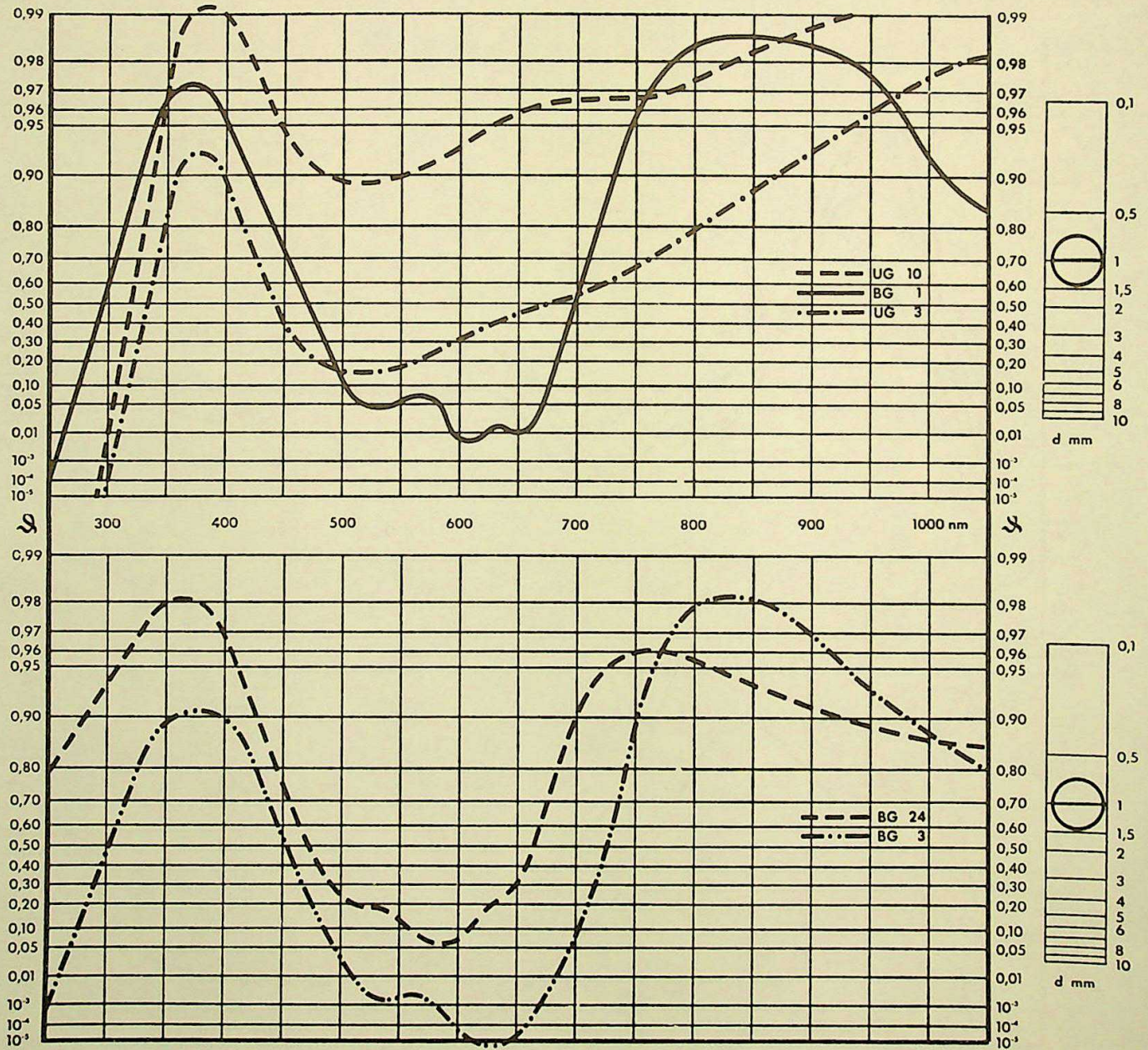
359/350

O.L.

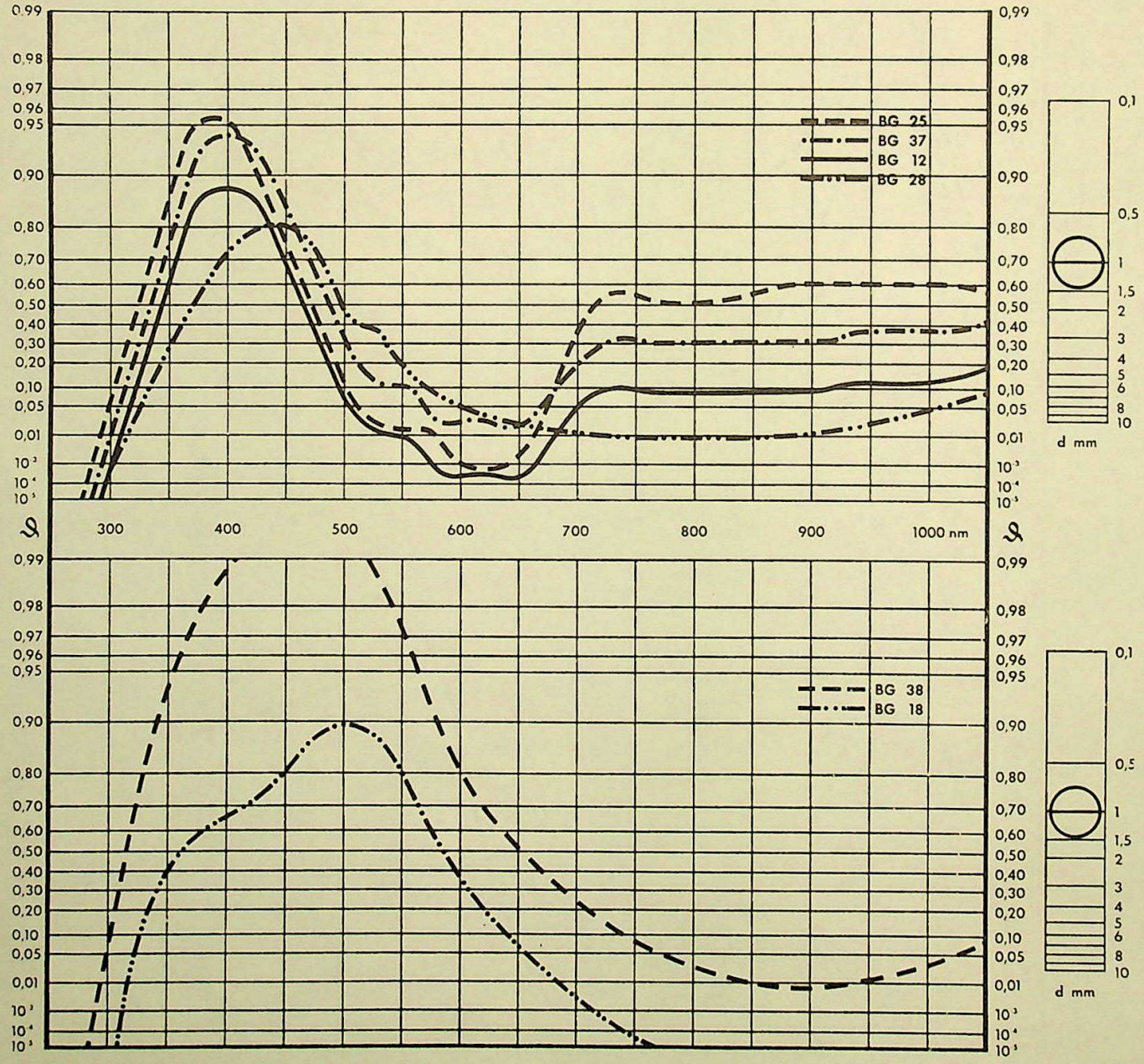
Glass type	Sheet glass T / Changes under UV-irradiation V	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
UG 5	V	Black glass, ultraviolet transmitting	2,84	④	0,91	1	39	39	
UG 11	V	Black glass, ultraviolet transmitting	2,81	④	0,91	1	39	39	
UG 1		Black glass, ultraviolet transmitting	2,77	②	0,91	1	—	39	
UG 12	T	Black glass, ultraviolet transmitting	2,55	②	0,915	1	—	39	
UG 14	T	Black glass, ultraviolet transmitting increased heat resistance	2,41	①	0,92	1	—	39	
UG 2	T	Black glass, ultraviolet transmitting	2,57	②	0,915	1	—	39	
UG 4	T	Black glass, ultraviolet transmitting increased heat resistance	2,41	①	0,92	1	—	39	



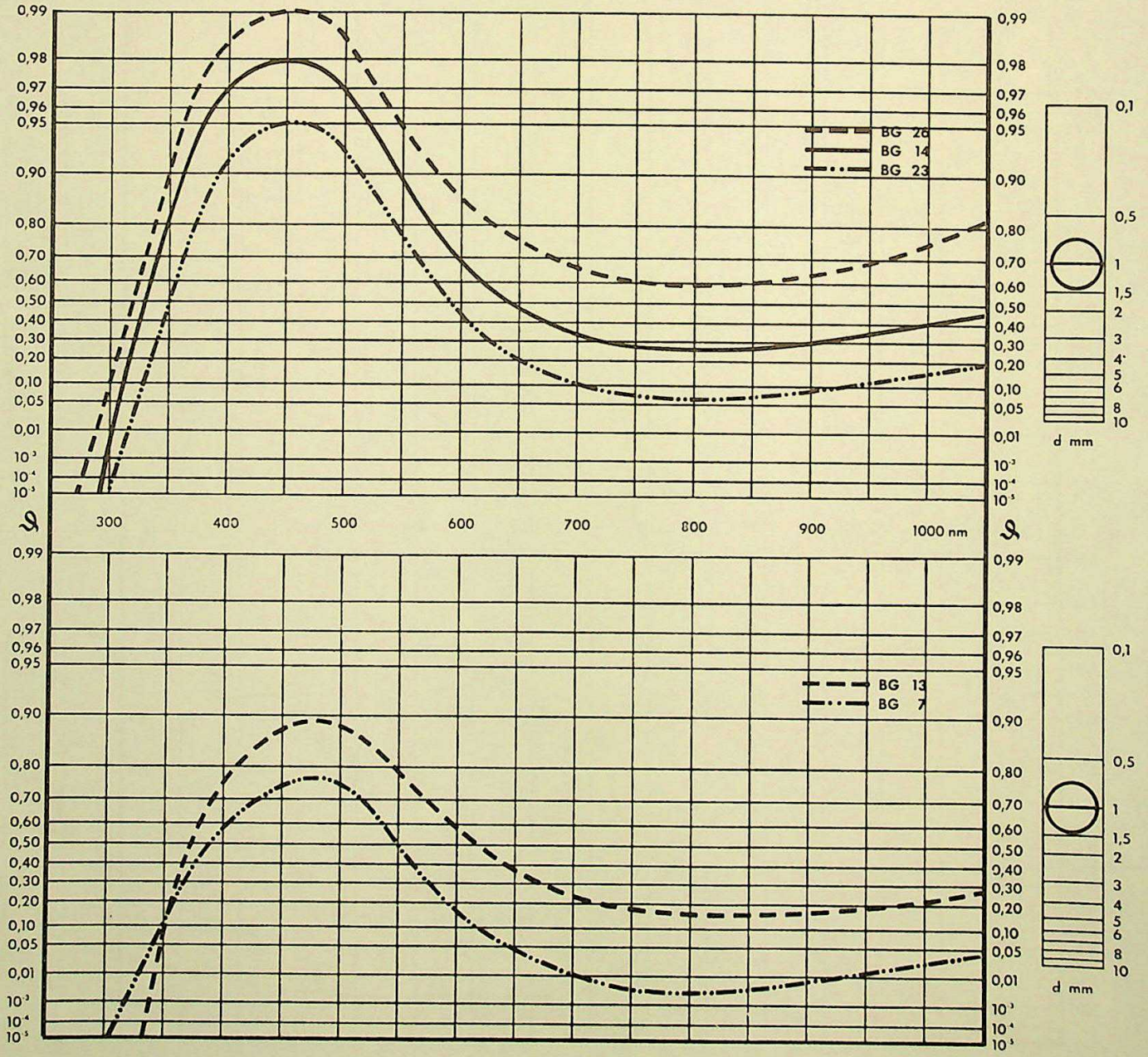
Glass type	Changes under UV-irradiation	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
UG 10		Blue-violet glass, transmitting ultraviolet and red	3,26	②	0,90	1	—	39	
BG 1	V	Blue-violet glass, transmitting ultraviolet and red	2,50	②	0,92	1	—	39	
UG 3		Blue-violet glass, transmitting ultraviolet and red	3,26	②	0,90	1	—	39	
BG 24	V	Blue-violet glass, transmitting ultraviolet and red	2,83	④	0,915	1	39	39	
BG 3	V	Blue-violet glass, transmitting ultraviolet and red	2,40	①	0,92	1	—	39	



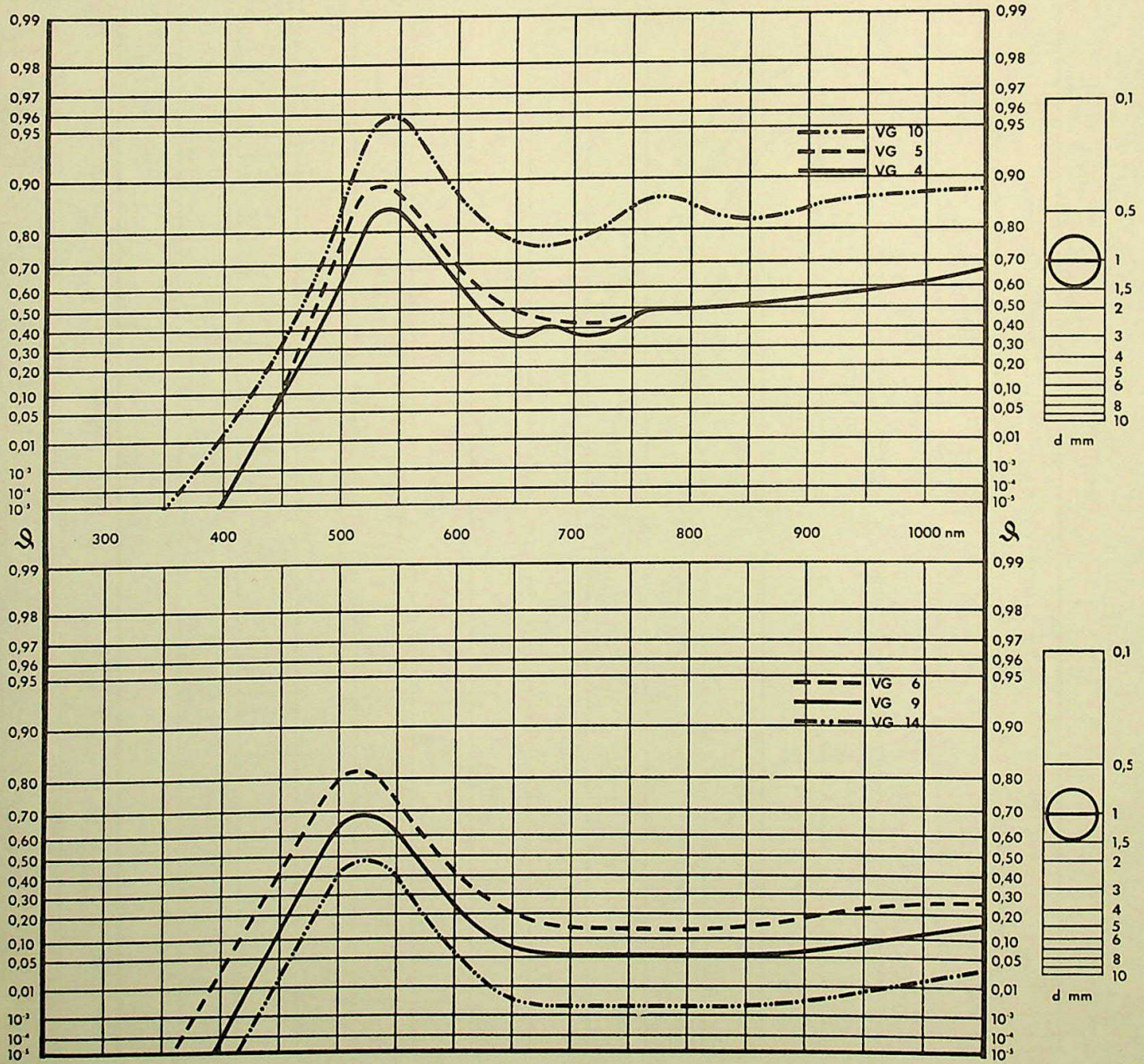
Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
BG 25	Blue-violet glass, red absorbing	2,56	②	0,92	1	—	39	
BG 37	Blue-violet glass, red absorbing	2,55	②	0,92	1	—	40	
BG 12	Blue-violet glass, red absorbing	2,57	②	0,92	1	—	39	
BG 28	Blue-violet glass, red absorbing	2,56	②	0,92	1	—	40	
BG 38	Blue-green glass, red absorbing	2,58	④	0,915	1	—	40	
BG 18	Blue-green glass, red absorbing	2,59	④	0,91	1	—	39	



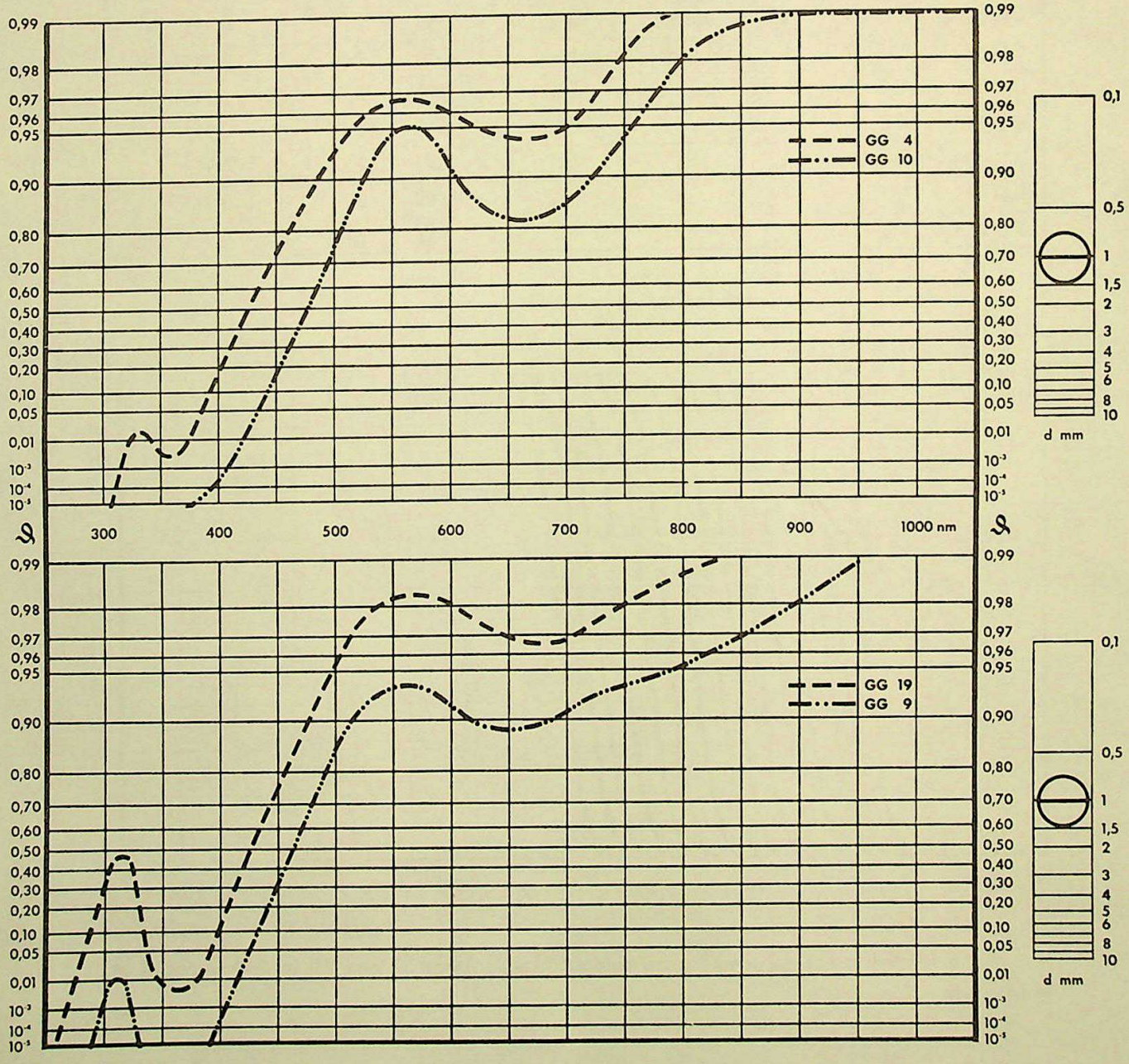
Glass type	Changes under UV-irradiation	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
BG 26	V	Blue glass, red absorbing	2,55	②	0,92	1	—	39	
BG 14	V	Blue glass, red absorbing	2,56	②	0,92	1	—	39	
BG 23		Blue glass, red absorbing	2,57	②	0,92	1	—	39	
BG 13		Blue glass, red absorbing	2,73	②	0,915	1	—	39	
BG 7		Blue glass, red absorbing	2,59	②	0,92	1	—	39	



Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
VG 10	Green glass	2,85	②	0,91	1	—	40	
VG 5	Green glass	2,84	③	0,91	1	—	40	
VG 4	Green glass	2,69	②	0,915	1	—	40	
VG 6	Green glass	2,88	③	0,91	1	—	40	
VG 9	Green glass	2,86	③	0,91	1	—	40	
VG 14	Green glass	2,88	③	0,91	1	—	40	



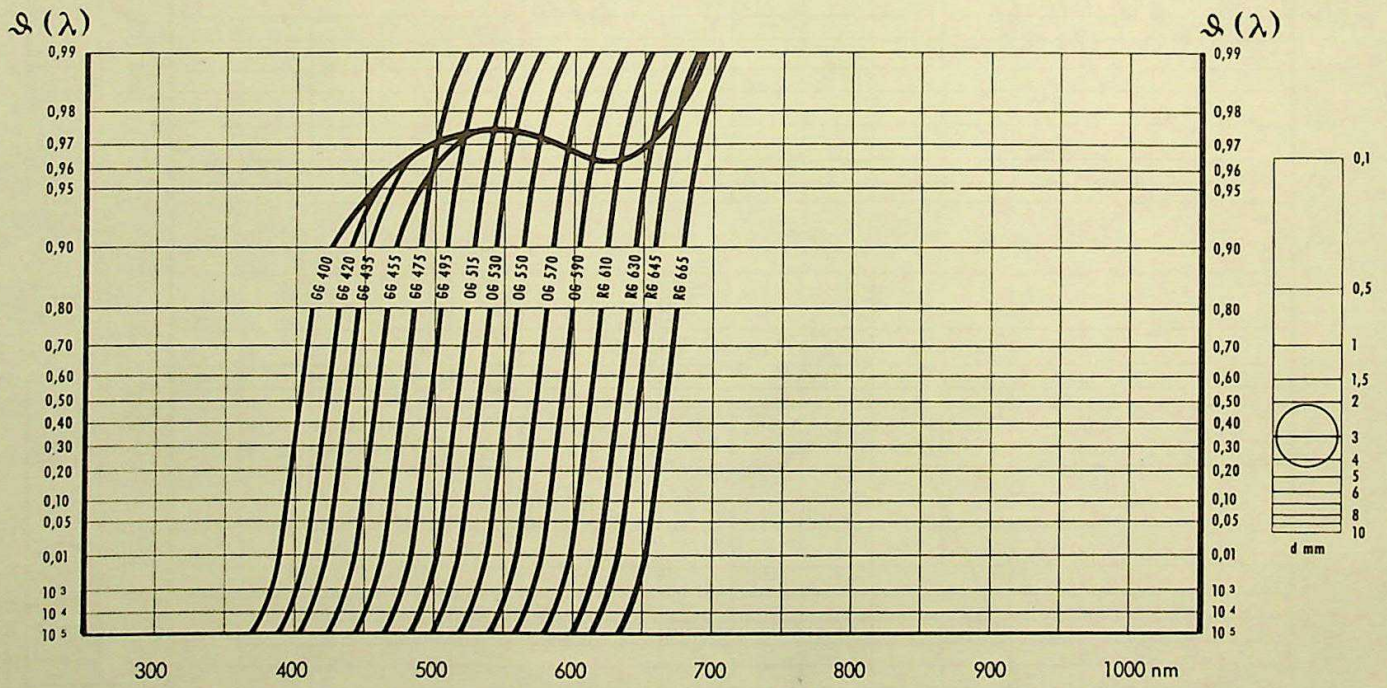
Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
GG 4	Greenish-yellow glass	2,73	③	0,915	1	—	40	
GG 10	Greenish-yellow glass	2,54	②	0,92	1	—	40	
GG 19	Greenish-yellow glass transmitting ultraviolet	2,75	③	0,915	1	—	40	
GG 9	Greenish-yellow glass transmitting ultraviolet	2,73	③	0,915	1	—	40	



Colored Glass Group: Yellow, orange, and red temperature colored glasses with sharp cut

Glass type new	Glass type old	Remarks	Color	approximate cut location λ_H in nm at thickness 2 mm	approximate cut location λ_H in nm at thickness 3 mm	Specific gravity s	Stability H	Correction factor P_d	Thickness applicable to transmission curve d mm
GG 400		A	colorless	397	400	2,72	③	0,91	3
GG 420	GG 15	A	colorless	417	420	2,72	③	0,91	3
GG 435	GG 3	A	yellow	432	435	2,72	③	0,91	3
GG 455	GG 5	A	yellow	452	455	2,72	③	0,915	3
GG 475	GG 7	A	yellow	472	475	2,72	③	0,915	3
GG 495	GG 14	A	yellow	492	495	2,73	③	0,915	3
OG 515	OG 4	A	orange	512	515	2,73	③	0,915	3
OG 530	OG 1	A	orange	527	530	2,73	③	0,915	3
OG 550	OG 5	A	orange	547	550	2,73	③	0,915	3
OG 570	OG 2	A	orange	567	570	2,73	③	0,915	3
OG 590	OG 3	A	orange	587	590	2,73	③	0,915	3
RG 610	RG 1	A	red	607	610	2,74	③	0,915	3
RG 630	RG 2	A	red	627	630	2,74	③	0,915	3
RG 645		A	red	642	645	2,74	③	0,915	3
RG 665	RG 5	A	red	662	665	2,74	③	0,915	3

A = Temperature colored glass (variation of "cut" position!)
λ_H = Wavelength giving internal transmittance 0,50



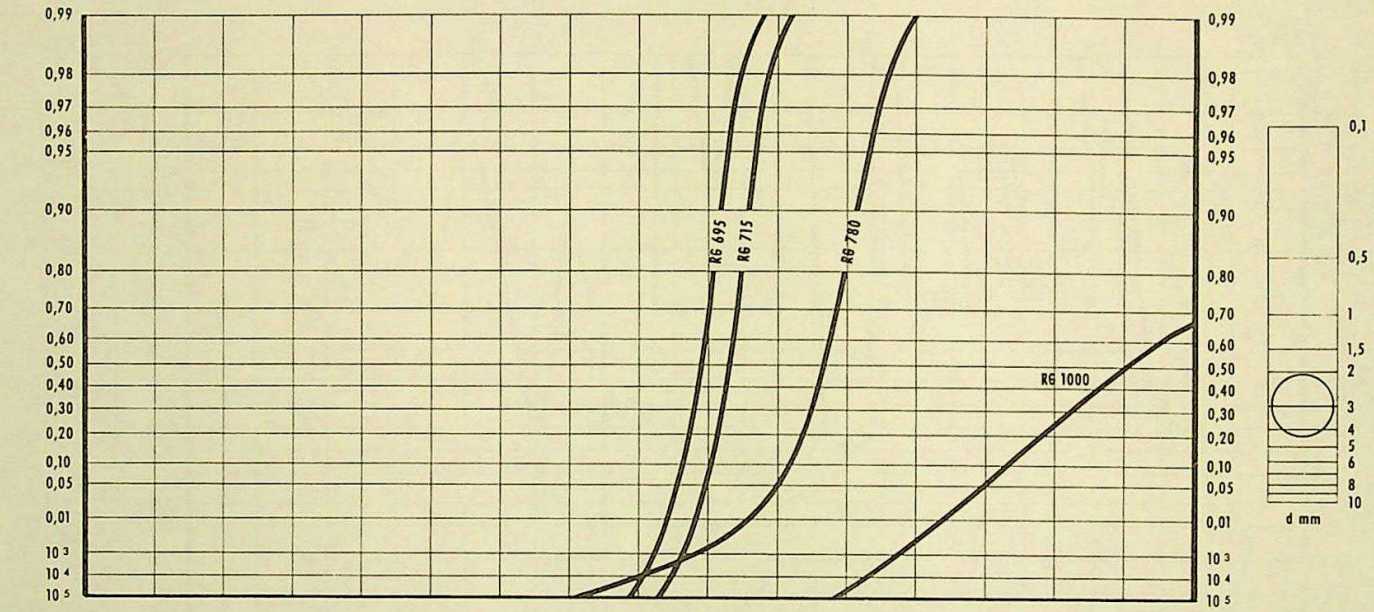
It is recommended to use the temperature colored glasses (page 22 and 23) in thicknesses of at least 2 mm.

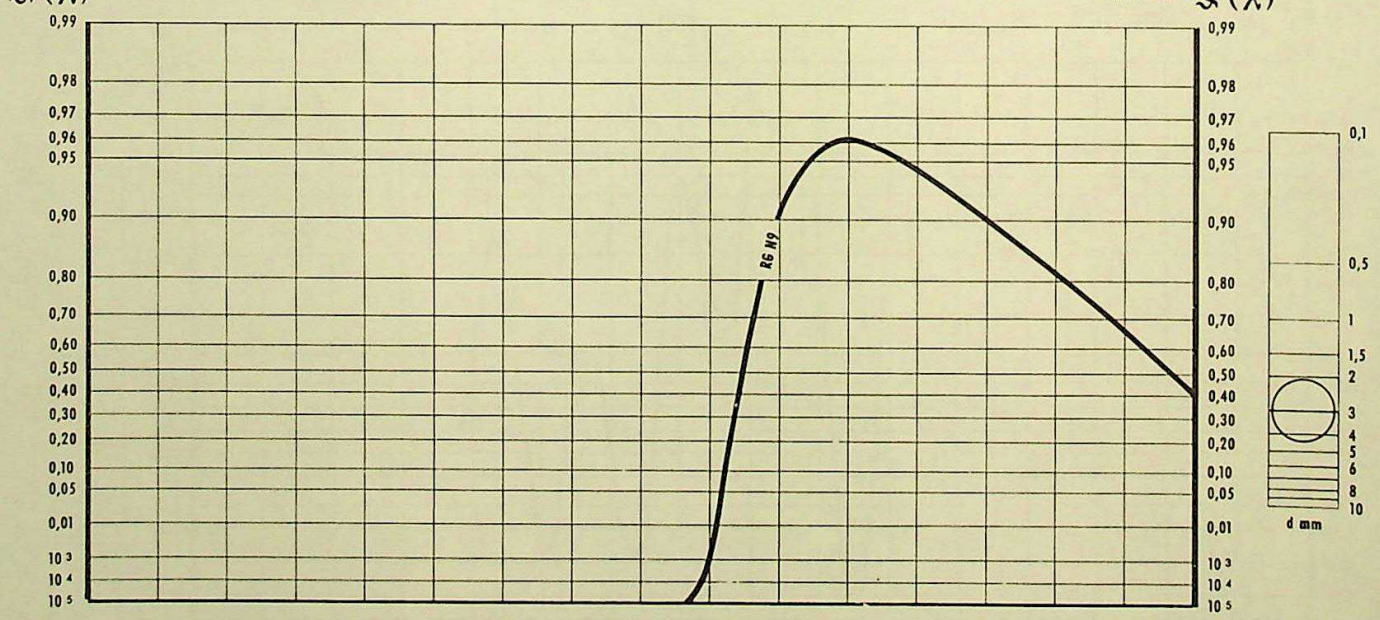
Internal transmittance for wavelengths from 1 to 3 μ as per IR-table on page 4.

Colored Glass Group: Infra-red transmitting black glasses

Glass type new	Glass type old	Remarks	approximate cut location λ_H in nm at thickness 2 mm	3 mm	4 mm	Specific gravity s	Stability H	Correction factor P_d	Thickness applicable to transmission curve d mm
RG 695	RG 8	A	691	695	698	2,74	③	0,915	3
RG 715	RG 10	A	711	715	719	2,74	③	0,915	3
RG 780		A	775	780	785	2,76	③	0,915	3
RG 1000	UG 8		970	1000	1020	2,74	②	0,915	3
RG N9	RG 9	A				2,61	②	0,915	3

A = Temperature colored glass (variation of "cut" position!)
λ_H = Wavelength giving internal transmittance 0,50

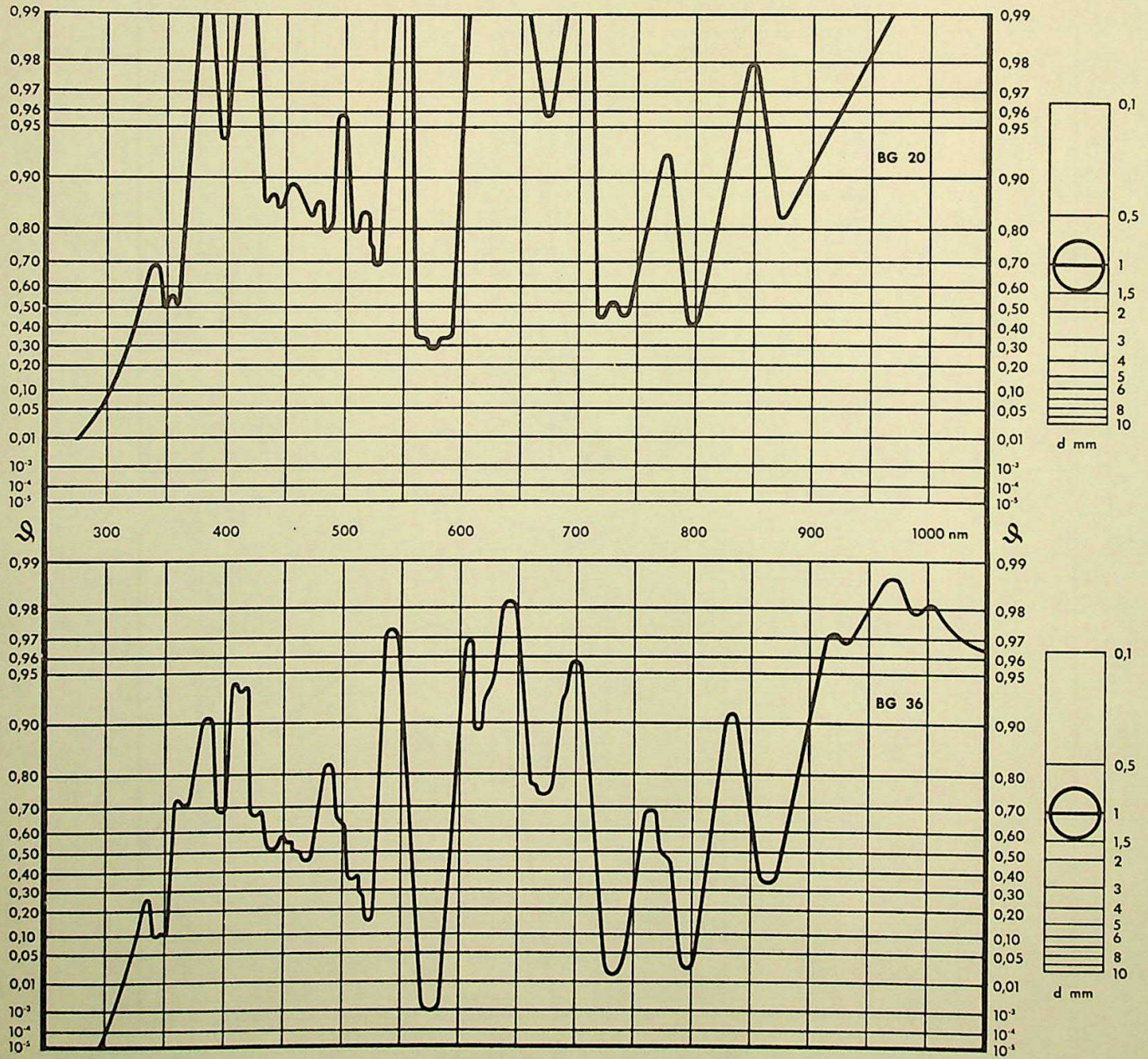




Internal transmittance for wavelengths from 1 to 3 μ as per IR-table on page 4.

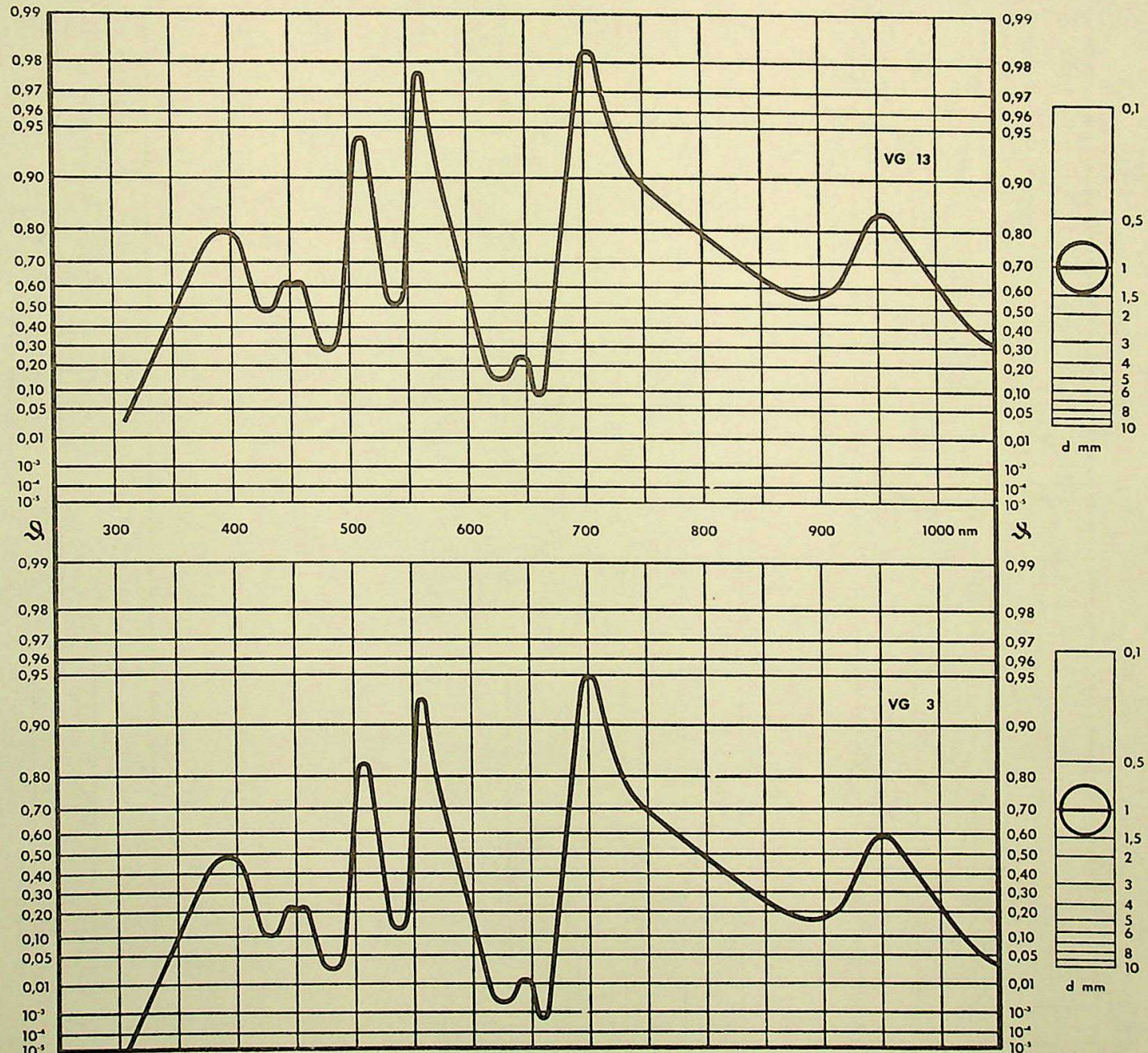
Glass type	Changes under UV-irradiation	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
BG 20	V	Didymium glass	2,99	③	0,91	1	—	—	
BG 36	V	Didymium glass	4,10	③	0,88	1	—	—	

For data in the infrared spectral region, see Page 26



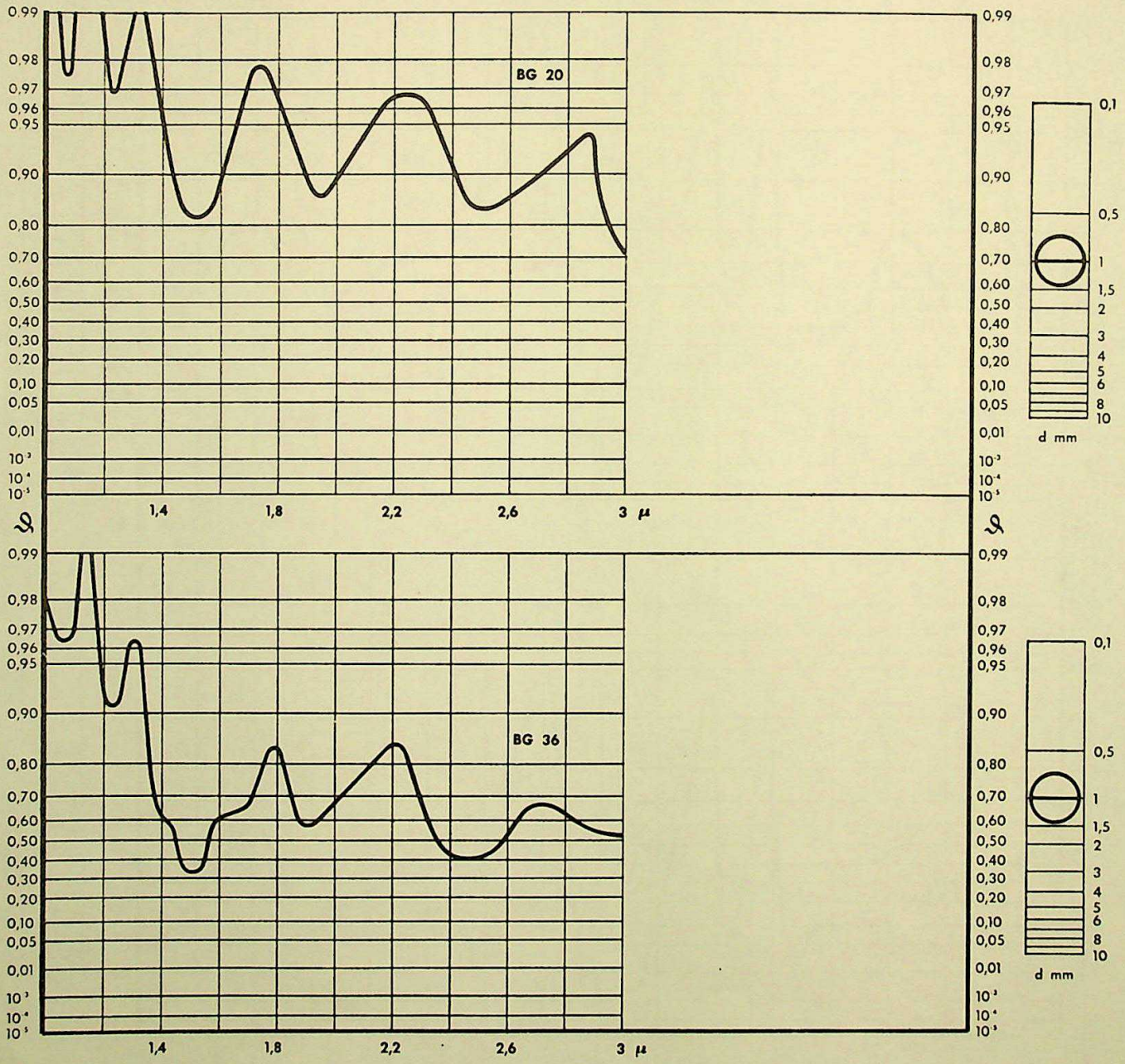
Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
VG 13	Uranium multiband glass	3,07	④	0,91	1	—	—	
VG 3	Uranium multiband glass	3,14	④	0,91	1	—	—	

For data in the infrared spectral region, see Page 27



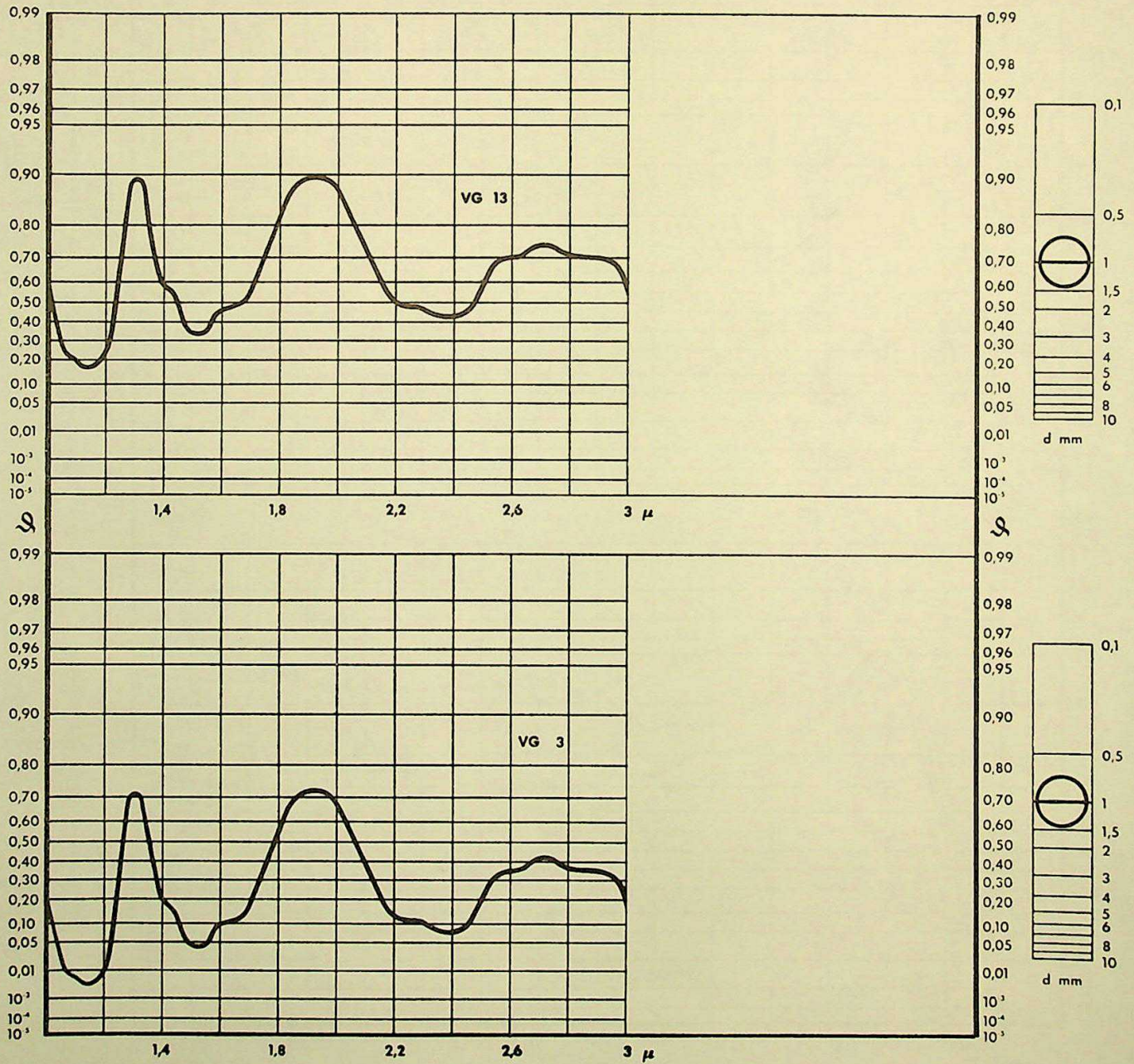
Glass type	Changes under UV-irradiation	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
BG 20	V	Didymium glass	2,99	③	0,91	1	—	—	
BG 36	V	Didymium glass	4,10	③	0,88	1	—	—	

Spectral region from 1 μ to 3 μ

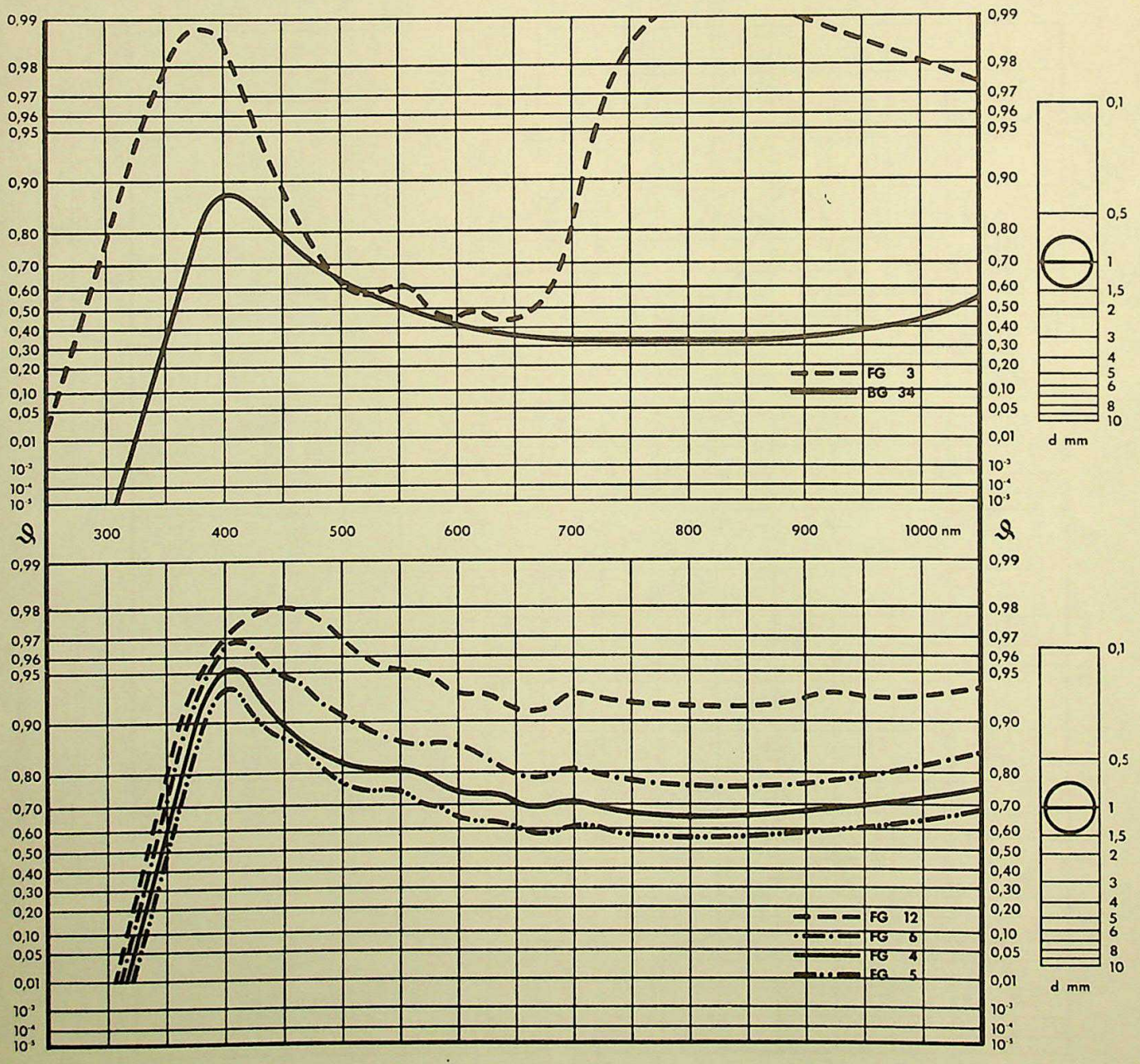


Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
VG 13	Uranium multiband glass	3,07	④	0,91	1	—	—	
VG 3	Uranium multiband glass	3,14	④	0,91	1	—	—	

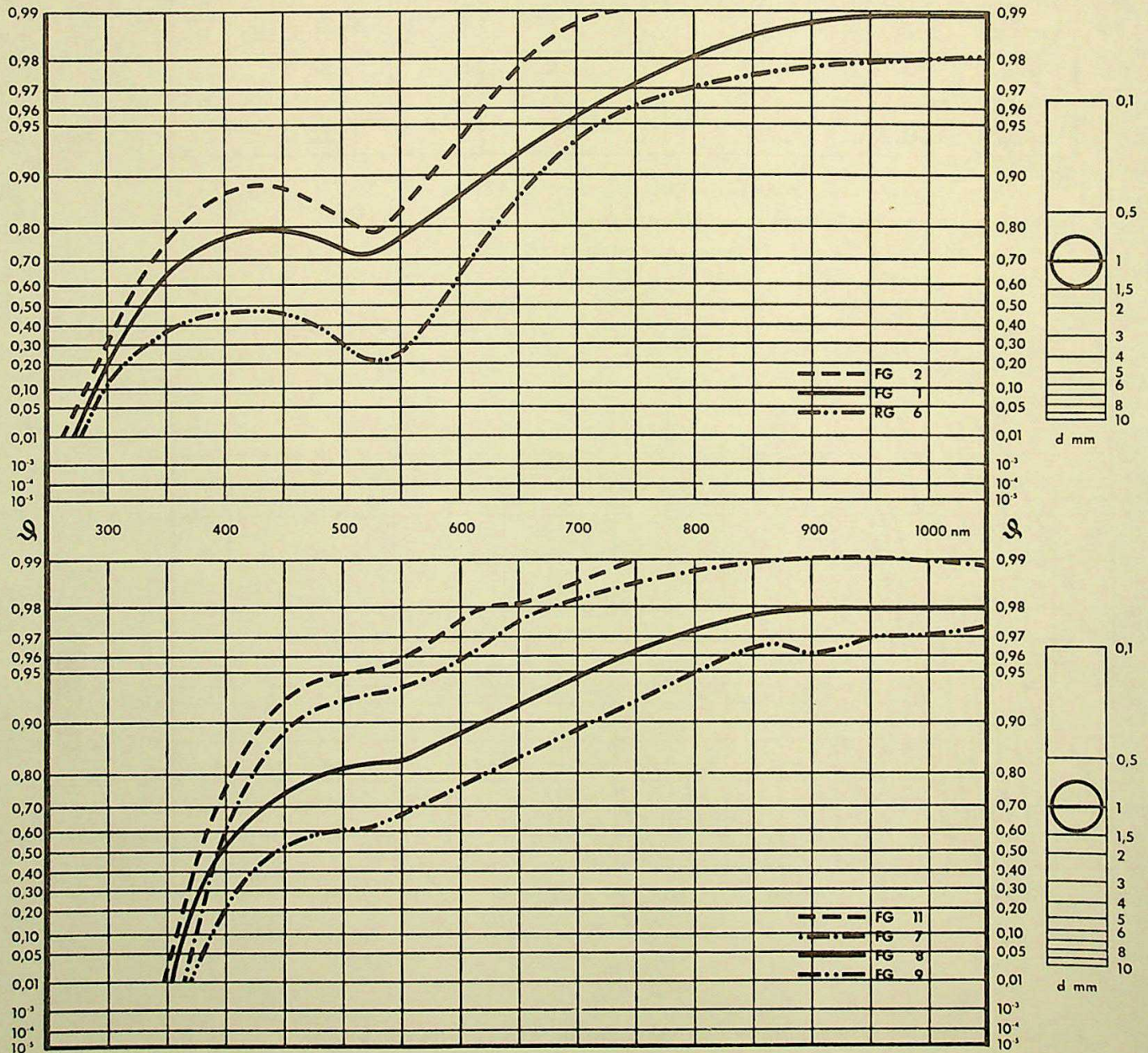
Spectral region from 1 μ to 3 μ



Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
FG 3	Blue-tinted glass, suitable for color-conversion filters	2,37	②	0,925	1	—	41	
BG 34	Blue-tinted glass, suitable for color-conversion filters	3,27	②	0,90	1	—	40	
FG 12	Blue-tinted glass, suitable for color-conversion filters	3,27	②	0,90	1	—	41	
FG 6	Blue-tinted glass, suitable for color-conversion filters	3,27	②	0,90	1	—	41	
FG 4	Blue-tinted glass, suitable for color-conversion filters	3,27	②	0,90	1	—	41	
FG 5	Blue-tinted glass, suitable for color-conversion filters	3,27	②	0,90	1	—	41	



Glass type	Variability of cut-off location A	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
FG 2	A	Rose-tinted glass, suitable for color-conversion filters	2,54	②	0,915	1	—	41	
FG 1	A	Rose-tinted glass, suitable for color-conversion filters	2,54	②	0,915	1	—	41	
RG 6	A	Rose-tinted glass, suitable for color-conversion filters	2,53	②	0,92	1	—	40	
FG 11	A	Amber-tinted glass, suitable for color-conversion filters	2,54	②	0,92	1	—	41	
FG 7	A	Amber-tinted glass, suitable for color-conversion filters	2,54	②	0,92	1	—	41	
FG 8	A	Amber-tinted glass, suitable for color-conversion filters	2,54	②	0,92	1	—	41	
FG 9	A	Amber-tinted glass, suitable for color-conversion filters	2,54	②	0,92	1	—	41	



Colored Glass Group: Colorless glasses having sharp cuts in the spectral region from 230 to 395 nm

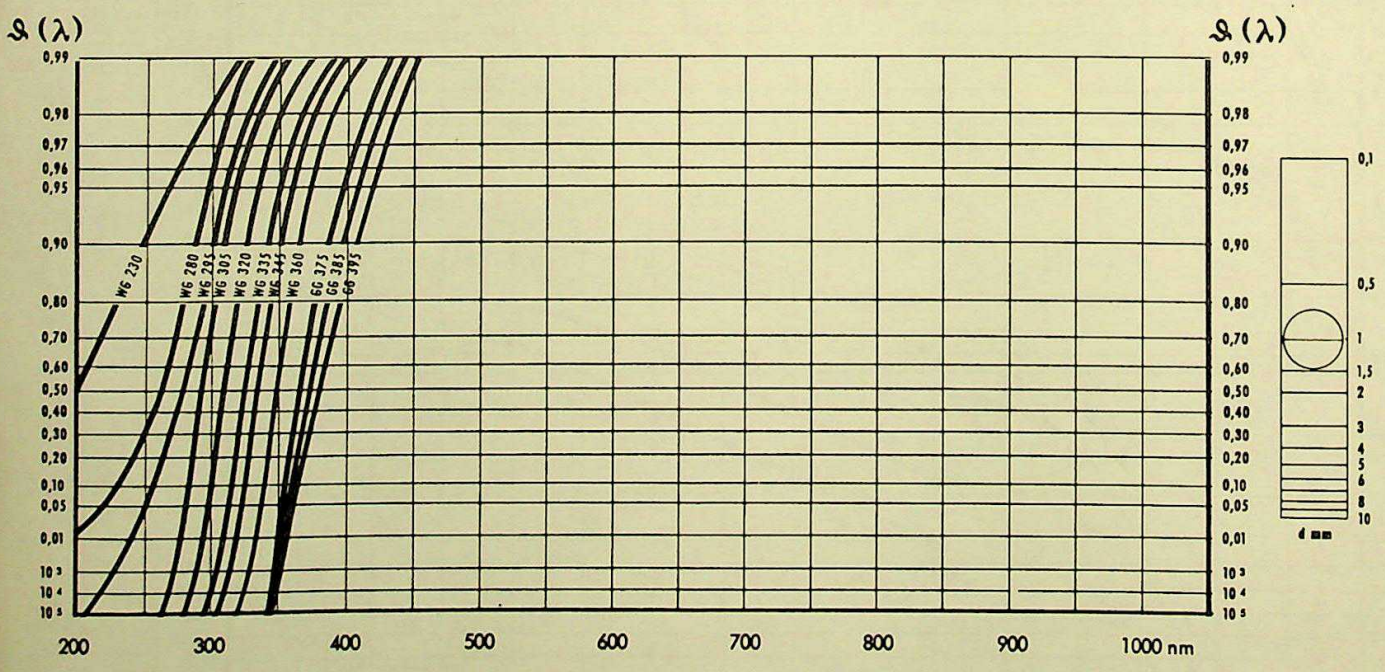
30 and 31 new

Glass type new	Glass type old	Remarks	approximate cut location λ_H in nm at thickness 1 mm	2 mm	3 mm	Specific gravity s	H Stability	Refractive index n_d	Correction factor P_d	d Thickness applicable to transmission curve mm
WG 230*	WG 8	V	198	218	230	2,83	④	1,53	0,915	1
WG 280			263	274	280	2,45	①	1,49	0,925	1
WG 295	WG 7	V	278	289	295	2,52	①	1,52	0,92	1
WG 305	WG 6		294	300	305	2,38	①	1,52	0,92	1
WG 320	WG 5		310	316	320	3,02	①	1,55	0,91	1
WG 335	WG 4		324	331	335	3,62	①	1,64	0,89	1
WG 345	WG 3		335	341	345	4,02	①	1,65	0,885	1
WG 360	WG 2		350	356	360	3,72	①	1,65	0,885	1
GG 375	GG 18		365	371	375	2,62	②	1,52	0,92	1
GG 385	GG 13		372	380	385	3,22	②	1,58	0,905	1
GG 395	GG 22		378	388	395	3,59	②	1,62	0,895	1

V = Change of transmission curve under UV-irradiation

λ_H = Wavelength giving internal transmittance 0,50

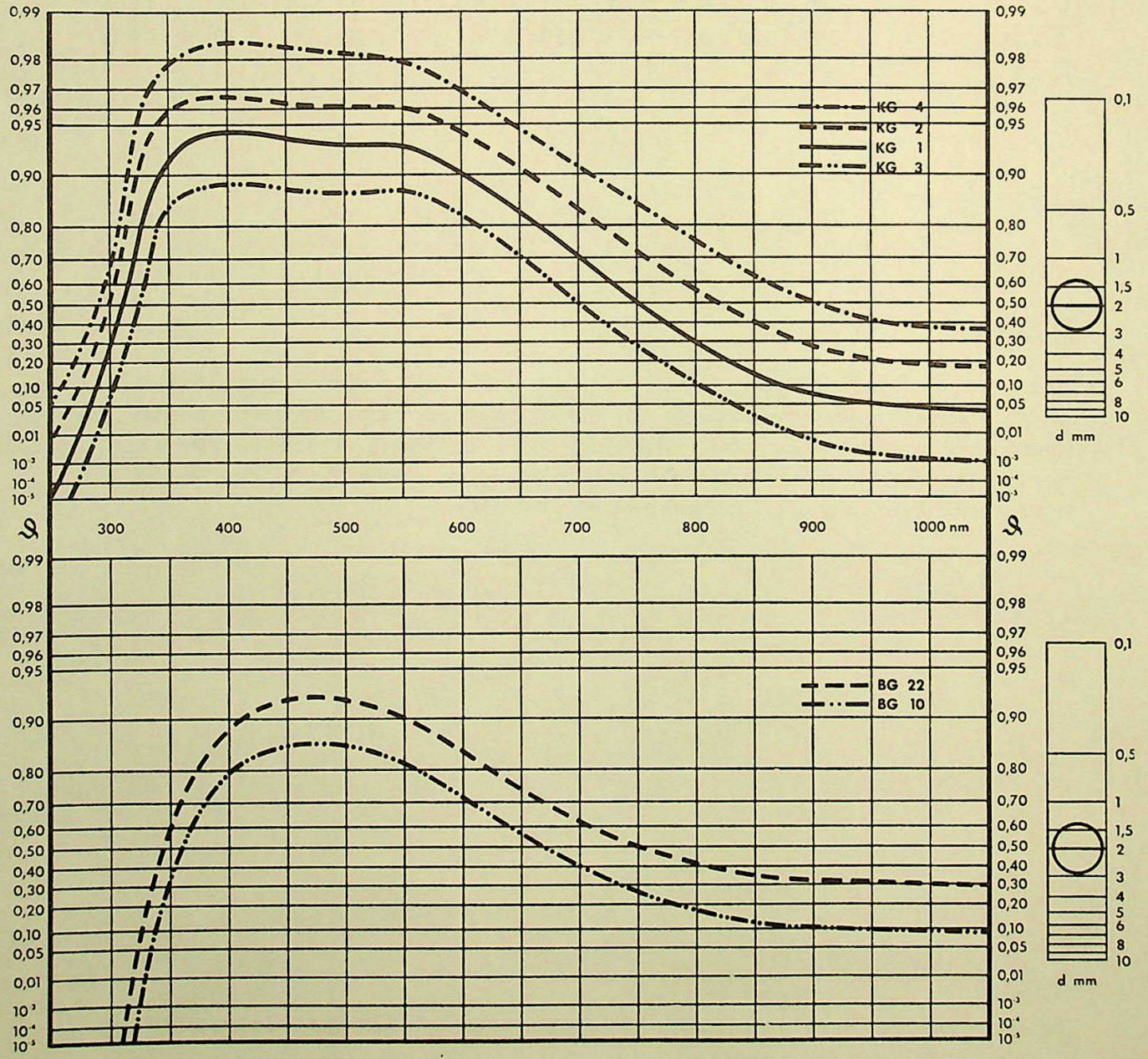
* = Variation of "cut" position from melt to melt up to ± 15 nm



Internal transmittance for wavelengths from 1 to 3 μ as per IR-table on the following page.

Glass type	Sheet glass T / Changes under UV-irradiation V	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve	UV-table page	IR-table page	Remarks
KG 4	V	Heat absorbing glass	2,55	④	0,92	2	—	41	
KG 2	V	Heat absorbing glass	2,56	④	0,92	2	—	41	
KG 1	V	Heat absorbing glass	2,57	④	0,92	2	—	41	
KG 3	V	Heat absorbing glass	2,58	④	0,92	2	—	41	
BG 22	T	Heat absorbing glass with good heat resistance	2,58	①	0,92	2	—	39	
BG 10	T	Heat absorbing glass with good heat resistance	2,60	①	0,92	2	—	39	

For infrared spectral region, see opposite page



IR-TABLE

Glass type	Thickness mm	Internal transmittance ϑ (λ) for λ in μ										
		1,0	1,2	1,4	1,6	1,8	2,0	2,2	2,4	2,6	2,8	3,0
WG 230	1	1,00	1,00	0,99	0,98	0,96	0,92	0,87	0,79	0,70	0,61	0,51
WG 280	1	1,00	1,00	1,00	1,00	1,00	1,00	0,99	0,98	0,97	0,48	0,48
WG 295	1	1,00	1,00	1,00	0,99	0,99	0,99	0,98	0,97	0,95	0,90	0,54
WG 305	1	1,00	1,00	1,00	0,99	0,99	0,99	0,98	0,97	0,94	0,88	0,65
WG 320	1	1,00	1,00	1,00	0,99	0,99	0,99	0,99	0,98	0,97	0,94	0,79
WG 335	1	1,00	1,00	1,00	1,00	0,99	0,99	0,99	0,98	0,98	0,96	0,79
WG 345	1	1,00	1,00	1,00	1,00	1,00	1,00	0,99	0,99	0,98	0,96	0,80
WG 360	1	1,00	1,00	1,00	1,00	1,00	1,00	0,99	0,99	0,98	0,96	0,81
GG 375	1	1,00	1,00	1,00	1,00	1,00	0,99	0,99	0,97	0,94	0,87	0,64
GG 385	1	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,98	0,95	0,88	0,68
GG 395	1	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,99	0,96	0,90	0,72

Special Note

The curves shown in this leaflet relate to those thicknesses which permit particularly good observation of the course of the transmission curves. However, customers are free to order those thicknesses which are best suited to their purposes. For this reason, color filter glasses are made to order. It is necessary, therefore, to specify size and thickness in orders and inquiries. For technical reasons we recommend that the glasses are used with a minimum thickness of 2 mm.

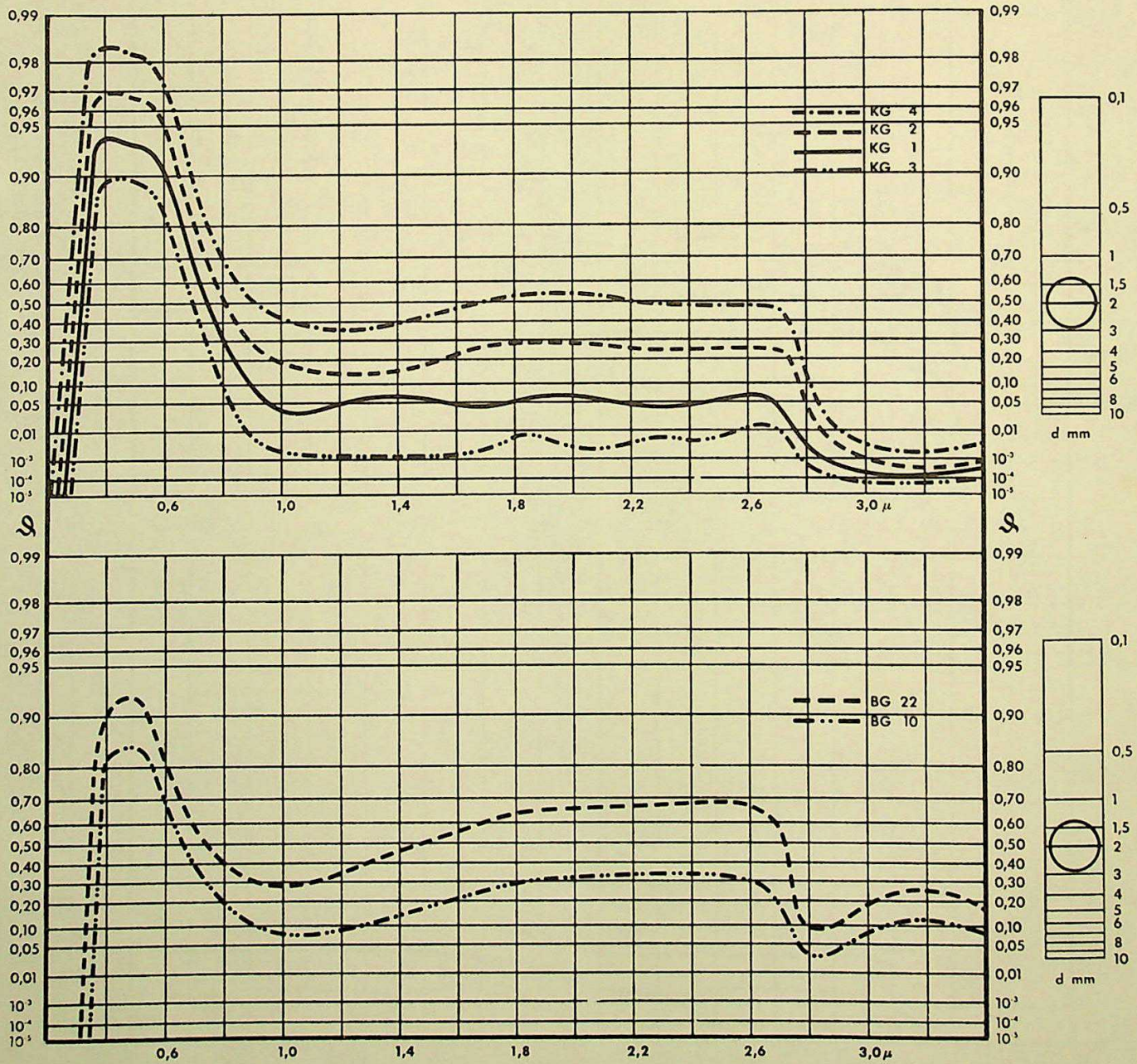
The temperature coefficients of transmission for the sharp cut glasses mentioned in leaflets 3504/I e and II e are listed in the table on the following page.

Roughly polished glasses of the KG-series are:

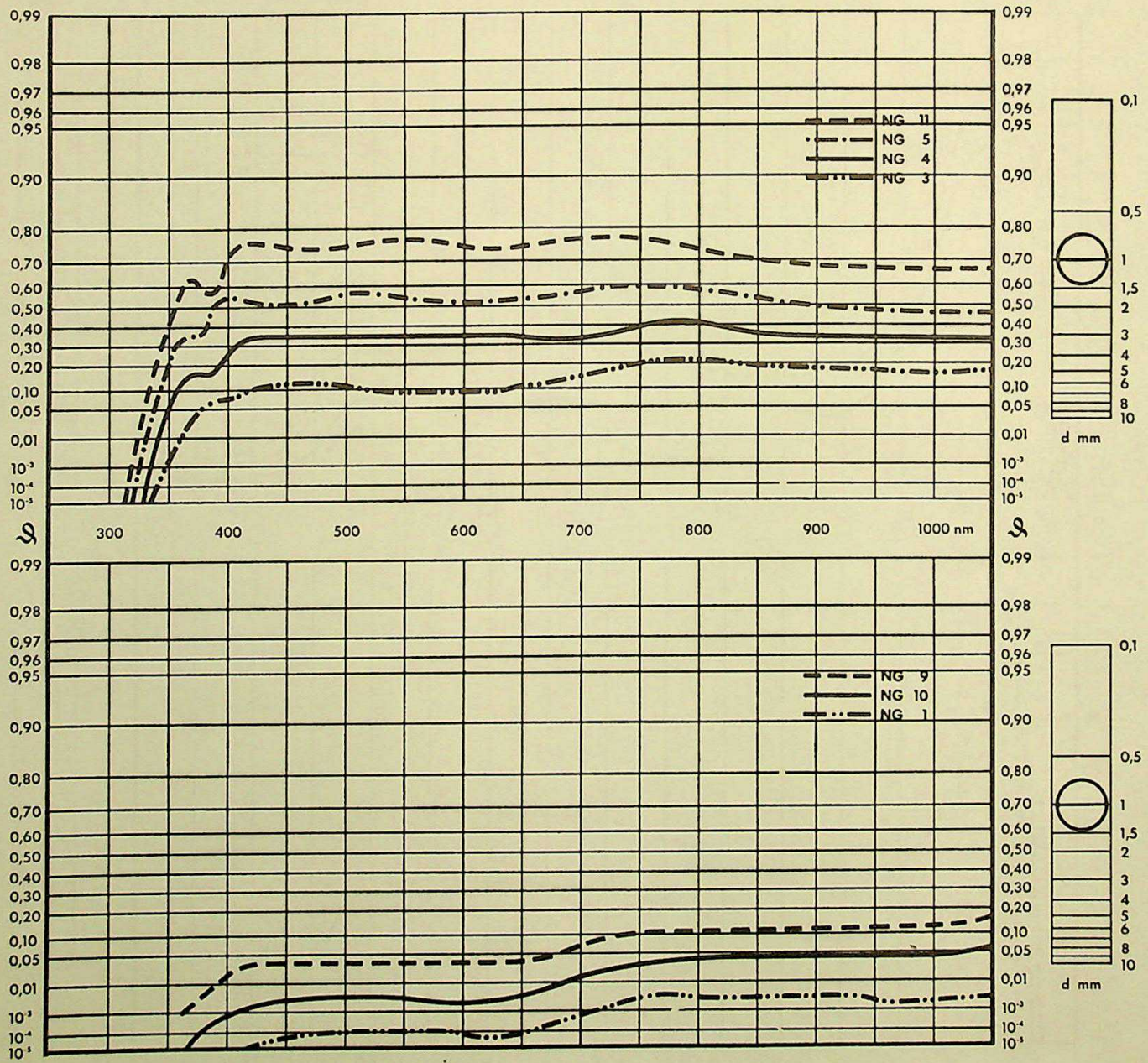
1) tempered, to increase their thermal resistance, and

2) provided with a protective film, to substantially decrease the effects of weathering

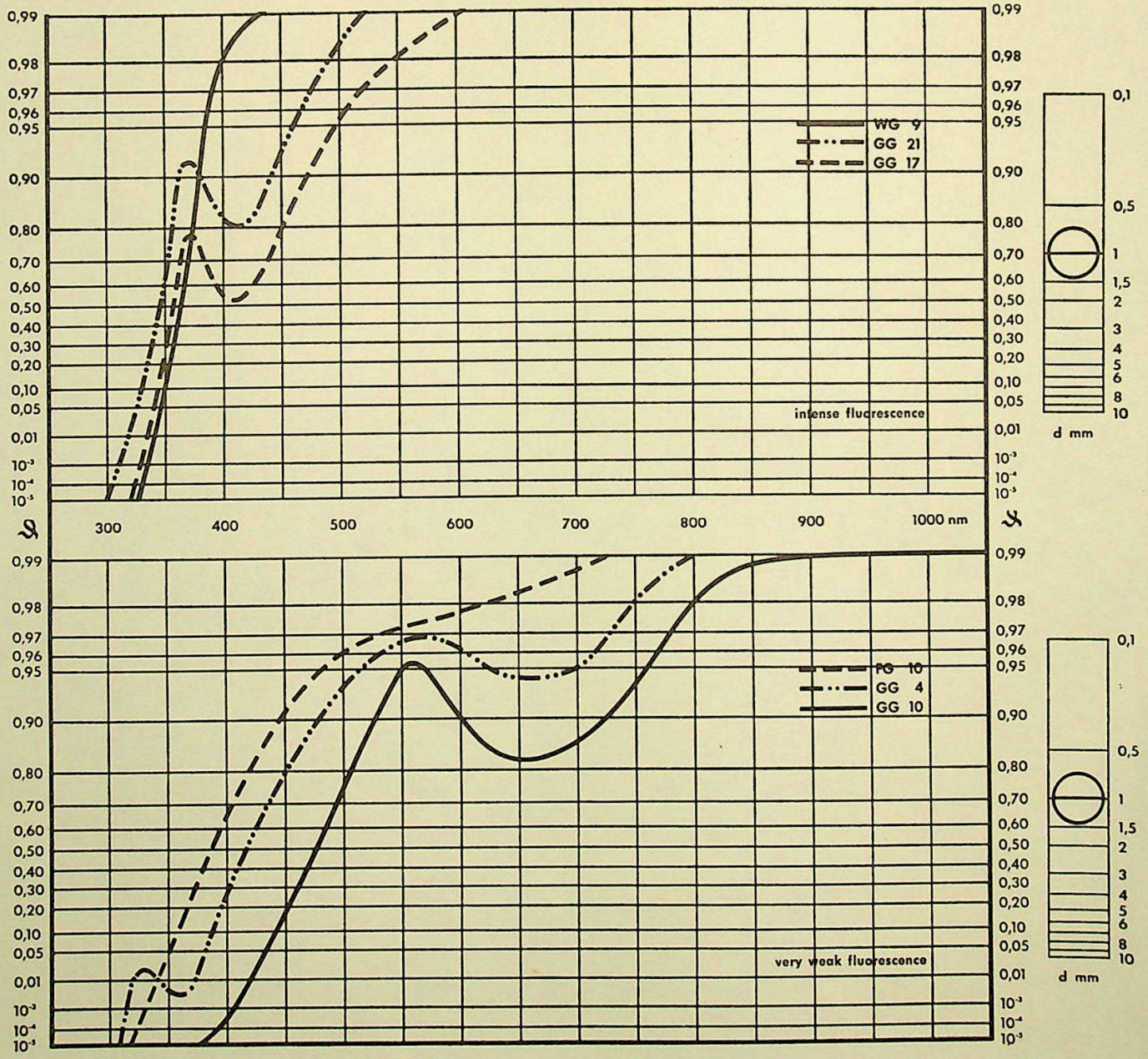
Spectral region from 0.2 μ to 3.4 μ



Glass type	Designation according to colored glass group	Specific gravity s	Stability H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
NG 11	Grey (neutral) glass	2,42	②	0,92	1	—	41	
NG 5	Grey (neutral) glass	2,42	②	0,92	1	—	41	
NG 4	Grey (neutral) glass	2,42	②	0,92	1	—	41	
NG 3	Grey (neutral) glass	2,42	②	0,92	1	—	41	
NG 9	Grey (neutral) glass	2,46	②	0,92	1	—	41	
NG 10	Grey (neutral) glass	2,46	②	0,92	1	—	41	
NG 1	Grey (neutral) glass	2,48	②	0,92	1	—	41	



Glass type	Designation according to colored glass group	Specific gravity s	H	Correction factor P_d	Glass thickness d applicable to transmission curve (mm)	UV-table page	IR-table page	Remarks
WG 9	Fluorescence glass fluorescence color: light blue	2,52	②	0,92	1	—	41	
GG 21	Fluorescence glass fluorescence color: greenish-yellow	2,47	②	0,925	1	—	40	
GG 17	Fluorescence glass fluorescence color: greenish-yellow	2,46	②	0,925	1	—	40	
FG 10	Glass that fluoresces very weakly	2,54	②	0,915	1	—	41	
GG 4	Glass that fluoresces very weakly	2,73	③	0,915	1	—	40	
GG 10	Glass that fluoresces very weakly	2,54	②	0,92	1	—	40	



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